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ABSTRACT

The data analysis and findings of the first panel study of adolescents and pre-adolescents in Canada are described. This longitudinal study was designed to (1) gather data on television viewing of heroes and heroines in series in the home environment; (2) analyze verbal responses about television programs to determine values perceived and the cognitive processing strategies used by the two age groups, and (3) determine if biological predisposition of the sexes was a factor in information perceived and meanings assigned. Initial questionnaires were administered separately to children and parents to gather sociodemographic, cultural, media, and family relationship data prior to the experiment. Repeat questionnaires were administered after every two weeks of viewing of the child's favorite television show. Analyses of the responses to measure age and sex differences on four dimensions--concrete/cognitive, concrete/affective, inferred/cognitive, and inferred/affective--show clearly and specifically on what dimensions differences occur in perception of content by boys and girls aged 10 and 14.
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PARENTS, ADOLESCENTS AND TELEVISION: PART II

ADOLESCENTS AND TELEVISION HEROES: CONCEPTUAL AND METHODOLOGICAL CONSIDERATIONS OF ANALYSIS OF RESPONSES AND INFORMATION PROCESSING STRATEGIES

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ADOLESCENTS AND PRE-ADOLESCENTS AND TELEVISION: CONCEPTUAL AND METHODOLOGICAL CONSIDERATIONS OF ANALYSIS OF RESPONSES AND INFORMATION PROCESSING STRATEGIES

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ADOLESCENTS AND PRE-ADOLESCENTS AND TELEVISION: CONCEPTUAL AND METHODOLOGICAL CONSIDERATIONS OF ANALYSIS OF RESPONSES AND INFORMATION PROCESSING STRATEGIES

This paper reports the findings of the first panel study of adolescents and pre-adolescents in Canada, whose goal was to gather data on television viewing of heroes and heroines in series in the home environment; to analyze verbal responses about television programs to determine values perceived and the cognitive processing strategies used by the two age groups and to determine if biological predisposition of the sexes was a factor in information perceived and meanings assigned.

The Importance of Perception.

Careful attention was paid to the criticism of Swanson[1] regarding the need for a theoretical basis for methodology and conceptualization and the problem of ambiguous concepts and terms which have appeared in uses and gratifications research.

Swanson's key recommendation was that perception be used as the framework within which to look at the use of television content to relate use to needs and gratifications[2]. The importance of perception lies in its interpretation as an active process in which the viewer interprets and creates meaning. This view of perception is in accord with Arnheim's definition which includes cognitive operations as essential ingredients of the act of perception itself:

> ... (it is) the active exploration, selection, grasping of essentials, simplification, abstraction, analysis, synthesis, completion, correction, comparison, problem solving, combining, separating, putting into context ... (of things perceived)[3]

Using perception in this manner and taking into consideration the Whorfian hypothesis that language is a way of thought, of seeing the world, the utility of using verbal responses of viewers as the key to perception and thought is a valid approach. Analysis of verbal comments about perceived content would show how different viewers use media. Although it is known that verbal responding falls far short of actual quantity and quality of perceived information, analysis of responses does offer a

fairly accurate means of perceiving how idea processing is related to the actual viewing experience. However, rigorous conceptual analysis, precise definitions and identification of assumptions are called for. To meet these criteria, the literature on cognitive development, learning theory and sex differences were studied in an effort to create a model that could identify, clearly define concepts needed to explain differences and to identify the assumptions being made about the viewer.

Cognitive Development Explored

There are several theories of Piaget[4] applicable to the development of constructs: the stage theory of cognitive development, the related theory of decentration (on information in visuals); the theory of central task/irrelevance differentiation. Piaget's notion of gradual and continuous intellectual growth is important when analyzing age groups. It shows that different cognitive abilities are evolving at different ages, thus offering explanations for the perception of different objects and events during different age periods. His work on judgment is also pertinent in that it explains the different bases for judgment made by pre-adolescents and adolescents. Based on Piaget's work, two concepts were selected as possible discriminators of differences: Concrete observations and Inferences. The ages of ten and fourteen were also selected based on Piagetian theory. It was assumed that the greatest possible differences would occur between the two groups in pre-operational and operational stages of cognition and these would be reflected in responses.

Learning theory appeared to be applicable since television viewing has long been considered a learning experience for children. Based on Bloom's taxonomy of knowledge incorporating cognitive and affective types, it appeared important to incorporate these groupings also, as recent findings in the sex literature show that boys and girls perceive information differently from the same source (Ullian[5]) and

the differences seem to reflect the cognitive/affective dichotomy.

Sex As a Factor

In the media violence literature, an aggressive-passive dichotomy between the sexes is assumed to account for the differences in adolescent girls' and boys' responses to television content; however, this dichotomy is never adequately explained or supported. Sex-role stereotype literature confirms the traditional image of women as passive (Levinson[6]). However, there has been no empirical research so far to substantiate that adolescent females identify with passive female behaviors and characters on television. Katzman[7] reports that television appears to establish the value systems of adolescent girls and boys or reinforce them, a factor in legitimizing certain behaviors. It may be that the value systems of adolescent girls and boys are thus selectively and differentially reinforced by television. Current media research looks for external causes of differences rather than looking within the child. By analyzing, not only cognitive abilities based on age, but also processes of sexual identity due to experience, development and biological predisposition, viewer responses about media content can be better understood.

Three sex difference theories are important to media studies of adolescents: 1) social learning theory, 2) developmental theory, and 3) biological orientation theory. Social learning theory postulates that sex differences in personality behaviors and values are a function of learning (socialization is the process). Masculine and feminine traits are a result of "environmental" conditions; conformity to sex role stereotypes are thought to be learned through observation, modeling, identification, imitation and expectancy. Family, education, media and society are implicated and relevant concerns (Kagan[8] Mussen[9] Bem[10]).

Developmental theorists maintain that masculinity and femininity are concepts which develop in accordance with the changing nature of a child's thinking about the biological, social and psychological differences between the sexes as well as the result of life experience (Ullian). Ullian's theory is based on the notion that sexual identity is not stable but undergoes changes as a result of cognitive and social development related to age. Adolescents, Ullian found, are social conformists and describe differences between men and women according to sex-role stereotypes, in spite of their recognition that these descriptions may not represent the true nature of male/female differences.

Those who espouse the theory of biological predisposition say there are significant differences in stimulus preferences, sensory sensitivity, perceptual and cognitive abilities even in infancy between the sexes. Hutt[11] uses these as incontrovertible evidence of biological differences. Researchers in this field are consistent in descriptions of the sexes: males - active, impulsive, competitive, aggressive, curious, object- and achievement-oriented; females - oriented to people, communication, reaction, dependency states and nurturing. In their view, males excel in verbal comprehension, reasoning, mathematics, spatial perception and abstract thought. Females perform better in terms of verbal fluency, communication, manual dexterity, memory and clerical skills. McGuinness[12] found that girls had higher auditory sensitivity than boys; boys are especially responsive to non-social visual output. Girls respond to socio-emotional qualities of voice and face and have a greater interest in faces. In the present study, the non-social visual output/socio-emotional dichotomy is reflected in the responses of adolescents. Without the insight obtained from the sex-differences literature, the findings would have been less intelligible as the responses did not fit the active-passive dichotomy cited in media studies.

Theory and construct

Cognitive development, learning and sex difference theories were used to develop the constructs needed to analyze responses. The cognitive skills identified by Piaget as being in a state of development during the 10-14 year old period, were arranged on a continuum of increasing complexity which also clarified the concrete and abstract groups of skills.

OVERT	COVERT	DESCRIPTORS	RELATIONSHIPS	MOTIVES	JUDGMENTS	PROJECTION
Physical Action/Behavior		Objects/Persons, Events	Persons/Events	Intentions Consequences	Values	to Life
VISIBLE/CONCRETE (PERCEPTUAL) ⟶				⟵ INFERRED/ABSTRACT (PSYCHOLOGICAL)		

The cognitive/affective dichotomy can also be correlated with the above perceptions. Both dichotomies are essential to understanding how the age groups and sexes perceive media content in order to clarify the function-symbol link of needs to uses mentioned by Swanson. Further subdivisions of responses into observations made from sound source vs. visual source yields additional information on age and sex differences. Appendix A shows age and sex differences as they related to affective preference and cognitive ability.

To analyze responses a four-cell model was created from the cognitive, affective, concrete and inferred classifications:

concrete/cognitive	concrete/affective
inferred/cognitive	inferred/affective

It was hypothesized that these dimensions would account for most of the differences in perceptions of content by boys and girls, ten- and fourteen-year olds. The principal hypotheses formulated were:

- Perception of media content is primarily a factor of cognitive ability.
- Ten-year olds perceive predominantly concrete action (concrete-cognitive) with some observations of concrete-affective events and little or no in-

ferences.

- Fourteen-year olds will make inferences to a significant degree, with boys inferring predominantly from cognitive events and girls from affective events.
- There is no significant difference between ten-year old boys and girls in the use of cognitive skills nor in the perception of media content due to their pre-operational state.

Sampling. A random sample of ten- and fourteen-year old boys and girls were selected from school lists in Montreal and Windsor, Canada, based on ethnic and non-ethnic percentages, in the cities studied, of the top four ethnic groups after English and French who regularly watch English television. Age was defined as "Ten or Fourteen at the time of selection, with no birthday during the six-week testing period".

Data source. Favorite television programs of children were purposely selected for a data base because high motivation in selective attending would result in more recall. For more realistic testing it was important to try to obtain information on perception of different kinds of programs so that cognitive processing strategies could be analyzed across content as well as age and sex groups. Piaget's theory shows that individual perception and cognitive operations would give the meaning to the content rather than the content having a meaning of its own independent of the viewer. Although the process is internal and individual, a six-week study across groups in different cities would establish "patterns' of cognitive processing for the age groups and sexes.

The experiment. Initial questionnaires were administered separately to each child and parent in each household to gather sociodemographic, cultural, media and family relationship data prior to the experiment.

A repeat questionnaire, identical for child and parent, was administered following the viewing of the child's favorite television program each week for six weeks. To reduce cost, every second week, the child and the parent self-administered the questionnaire, recording responses on an audio tape recorder. A discussion period was also recorded. However, the repeat questionnaire was the basic tool used for the analysis of cognitive processing strategies employed by pre-adolescents as compared with adolescents. The questionnaire gathered data on what was perceived, how it was perceived, assigned meaning, judged, with whom it was discussed, what changes in perception or judgment occurred as a result of discussion, and what use, if any, was made of the information learned from the program. Over 5,000 responses to questions were obtained and coded according to the four categories. Less than 1% disagreement occurred on coding among the four coders.

The categories were defined as follows:

Concrete/cognitive - objects, events, facts that can be known through perceptions of visual or verbal representations in the program;

Concrete/affective - attitudes, feelings, emotions that can be known through perceptions of visual or verbal representations in the program;

Inferred/cognitive - conclusions deduced from perception of objects, events, facts perceived in the visual or verbal representations of the program;

Inferred/affective - conclusions deduced from perception of attitudes, feelings, emotions perceived through visual or verbal representations in the program.

These constructs get at underlying abilities and predispositions which have been researched separately, should, if studied together, yield a better explanation of differences in adolescent, pre-adolescent, male and female responses.

Findings

Chi^2 contingency analysis was made of responses to measure age and sex differences. Analysis of responses on the four dimensions within each age group, with sexes grouped together, showed no significant differences in responding on any dimension. However, when between-age groups and between-sexgroups analyses were made, interestin

results were obtained.

Both age groups make concrete/cognitive observations to a significant degree, $\chi^2 = 9.47$, $p < .01$ (Table 1). Ten-year olds seem to be less affected by concrete/affective content than their fourteen-year old counterparts.

When an analysis of age differences on the concrete/affective and inferred/affective dimensions is made, a $\chi^2 = 0$ is obtained, which can be interpreted as saying that group differences in responses on the two dimensions represent statistical normalcy(Table 2)

When an analysis of age differences on the concrete/cognitive and infered/cognitive dimensions is made, the differences are significant, $\chi^2 = 27.11$, $p < .001$. This finding supports, substantially, cognitive development theory that ten-year olds are heavily concrete in their observations and will make practically no inferences at the pre-operational stage. On the other hand, fourteen-year olds will respond as many times with inferences as with concrete observations (Table 3).

Another important finding resulted from a comparison of concrete/affective and inferred/affective responses of the two age groups. Fourteen-year olds were found to observe more affective events overall. Also, they observe more concrete/affective events than their ten-year old counterparts, $\chi^2 = 5.01$, $p < .05$. (Table 4).

Analyses of sex differences were significant on several comparisons:

Table 7 shows that ten-year old boys can infer more than ten-year old girls on affective, $\chi^2_{(1)} = 5.31$, $p < .05$. Table 8 confirms the same finding, $\chi^2_{(1)} = 5.63$, $p < .05$. Table 10 shows that differences are significant on concrete/cognitive and affective and are age-contingent among girls; ten-year olds observe significantly more concrete cognitive and fourteen-year olds observe significantly more concrete/affective, $\chi^2_{(1)} = 52.36$, $p < .001$. Table 11 shows that fourteen-year old girls respond significantly on concrete and inferred/affective dimensions over ten-year old girls $\chi^2_{(1)} = 5.70$, $p < .0$

Table 12 shows that fourteen-year old girls can infer affectively to a significant degree, while ten-year olds cannot, $\chi^2_{(1)}=3.15$, $p<.001$. Table 18 shows that differences on concrete/affective are sex contingent with fourteen-year old girls perceiving significantly more than fourteen-year old boys, $\chi^2_{(1)}=34.79$, $p<.001$. Table 19 shows that differences on inferred/affective are sex contingent, with fourteen-year old girls perceiving significantly more than fourteen-year old boys, $\chi^2_{(1)}=2.87$, $p<.10$. Table 20 shows that differences on inferred/affective are sex-contingent, with fourteen-year old girls perceiving significantly more than fourteen-year old boys, $\chi^2_{(1)}=17.84$, $p<.01$.

These analyses show clearly and specifically on what dimensions differences occur in perception of content by boys and girls, aged ten and fourteen.

The Importance of the Findings

The four-dimensional construct used for analysis in this study is a workable model to determine differences in responding to television content due to age and sex-related factors. Taking the basic findings from the theories used, other constructs can be developed to yield other kinds of information about perception (self-image, depth of responding due to age and intelligence, etc.)

Since one of the practical goals of the current study was to develop inexpensive evaluational tools that could be used by the television industry, to determine impact of adult programming on youth, it is in this area that its social importance was perceived. Those who design programs can more accurately determine beforehand, what information is or is not perceived by pre-adolescent and adolescent audiences, by boys, by girls. The construct is important in determining how content in adult programs is perceived by children, and decisions can be made about revisions and/or deletions according to the findings. For example, an analysis of responses about Soap, Charlie's Angels and Three's Company, the so-called sex shows, demonstrates the usefulness of the construct.

Soap has frequent references in scripts to sex and portrays questional sex relationships. References are repetitive enough and central enough to the plots that the information is perceived by adolescents. This makes Soap a program for parental concern. However, Soap characters are perceived by adolescents as unrealistic and not worthy of imitation. Does this latter judgment have an effect on the former curiosity?

Charlie's Angels presents, to adolescent girls, females in male roles of policemen and to boys, exciting adventure. Sex, although visible to adult males in the persons of the Angels, are not perceived as sex symbols by adolescent girls, and only marginally so by boys. Personalities of the Angels are a key factor in attracting youth.

Three's Company has references to sexual attitudes during the programs but they appear to be so subtle as to be missed by adolescents. Sex information is peripheral to the plot most of the time. Humor dominates the script and appears to be the principal reason adolescents enjoy the program, along with the appeal of the characters. Hence, this series is of lesser concern.

To summarize, the findings support the sex difference literature and Piaget's notion of stages. Boys attend to plot and frequently make cognitive judgments about events. Boys will more readily perceive visual sex and violence, while girls will more readily perceive auditory references to sex and violence and be affected by it. Girls of fourteen will more frequently attention to the affective dimensions of stories (relationships, facial indicators of emotional states) and boys will notice things like honesty, justice and the like.

Adolescents, generally, will not perceive verbal innuendo or visual subtleties of face or body language having to do with sex and violence. Because of this, many aspects of television programs causing concern in parents are not even seen by adolescents and pre-adolescents. However, further research is recommended.

If the construct discussed in this paper is combined with an analysis of values perceived in television content, together they serve to answer most questions broadcasters would have about social impact of programming on children. This is important, as was noted before, because there has been no significant development of programs for adolescents and youth and they have become heavy viewers of adult programming.

TABLE I

Analysis of concrete/cognitive vs. concrete/affective by age groups

	10	14
C.C.	124	119
C.A.	44	83

$\chi^2 = 9.47, p < .01$

TABLE II

Analysis of Inferred/affective vs. Inferred/Cognitive by age groups

	10	14
I.C.	22	83
I. A.	15	60

$\chi^2 = 0$

TABLE III

Analysis of Concrete/cognitive vs. Inferred/cognitive by age groups

	10	14
C.C.	124	119
I.C.	22	83

$\chi^2 = 27.11, p < .001$

TABLE IV

Analysis of Concrete/Affective vs. Inferred Affective by age groups

	10	14
C.A.	44	83
I.A.	15	60

$\chi^2 = 5.01, p < .05$

TABLES 5 - 20

ANALYSIS OF DIMENSIONS BY SEX AND AGE, WITHIN AND BETWEEN GROUPS

5.

	10G	10B
CC	81	62
IC	29	27

6.

	10G	10B
CC	81	62
CA	15	13

7.*

	10G	10B
CA	15	13
IA	0	8

8.*

	10G	10B
IC	29	27
IA	0	8

9.

	10G	14G
CC	81	51
IC	29	21

10.*

	10G	14G
CC	81	51
CA	15	87

11.*

	10G	14G
CA	15	87
IA	0	44

12.*

	10G	14G
IC	29	21
IA	0	44

13.

	10B	14B
CC	62	55
IC	27	38

14

	10B	14B
CC	62	55
CA	13	14

15.

	10B	14B
CA	13	14
IA	8	15

16.

	10B	14B
IC	27	38
IA	8	15

17.

	14 B	14G
CC	55	51
IC	38	21

18.*

	14B	14G
CC	55	51
CA	14	87

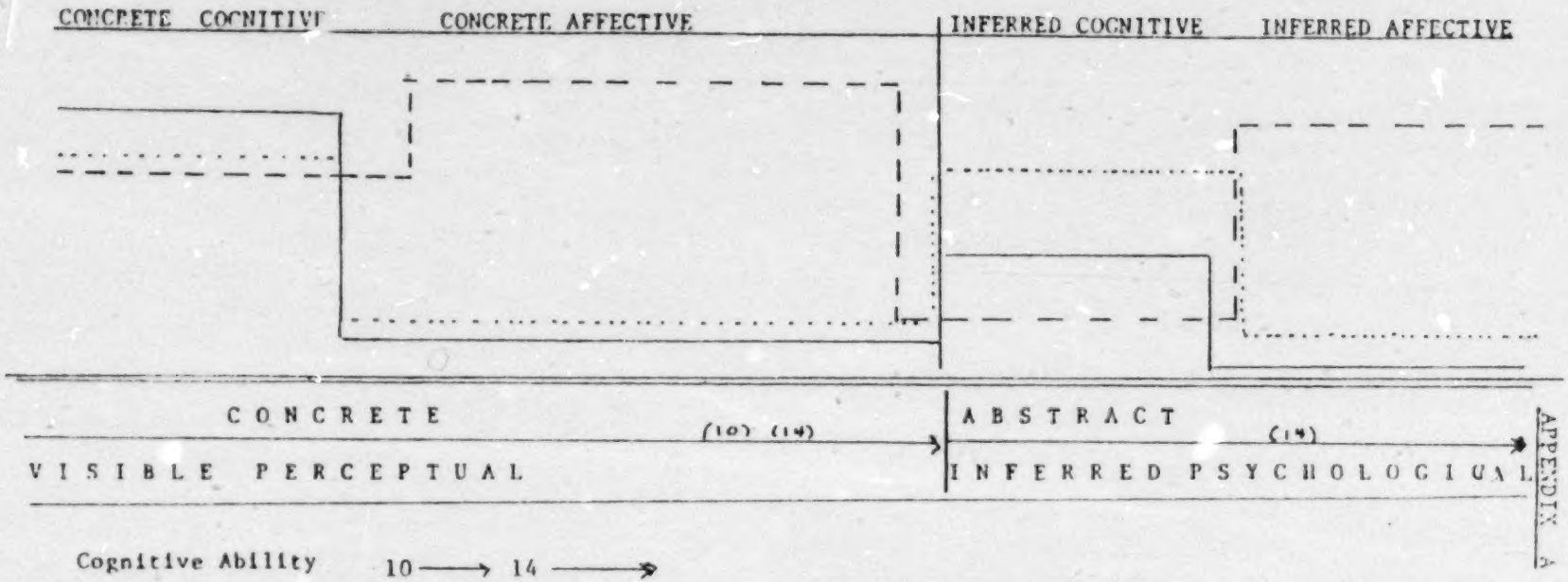
19.*

	14B	14G
CA	14	87
IA	15	44

20.*

	14B	14G
IC	38	21
IA	15	44

5. NS
6. NS
7. $X^2(1) = 5.31$, $p < .05$
8. $X^2(1) = 5.63$, $p < .05$
9. NS
10. $X^2(1) = 52.36$, $p < .001$
11. $X^2(1) = 5.70$, $p < .05$
12. $X^2(1) = 31.5$, $p < .001$
13. NS
14. NS
15. NS
16. NS
17. NS
18. $X^2(1) = 34.79$, $p < .001$
19. $X^2(1) = 2.87$, $p < .10$
20. $X^2(1) = 17.84$, $p < .01$



Cognitive Ability 10 ⟶ 14 ⟶

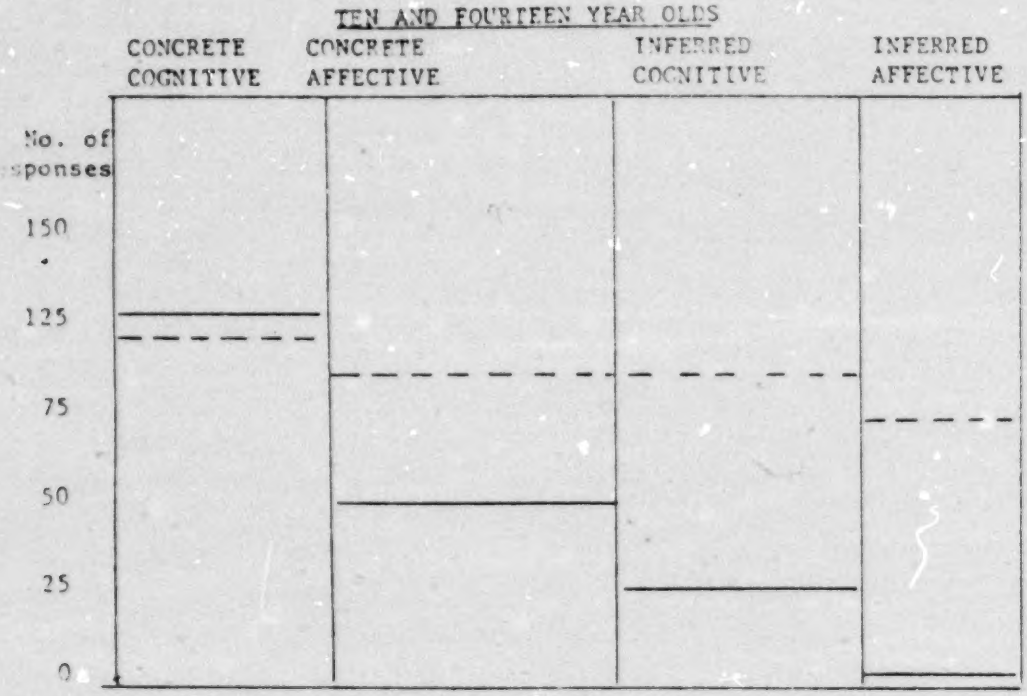
Affective preference 10 —— 14 — — — G ..... B

(Girls Boys)

APPENDIX B

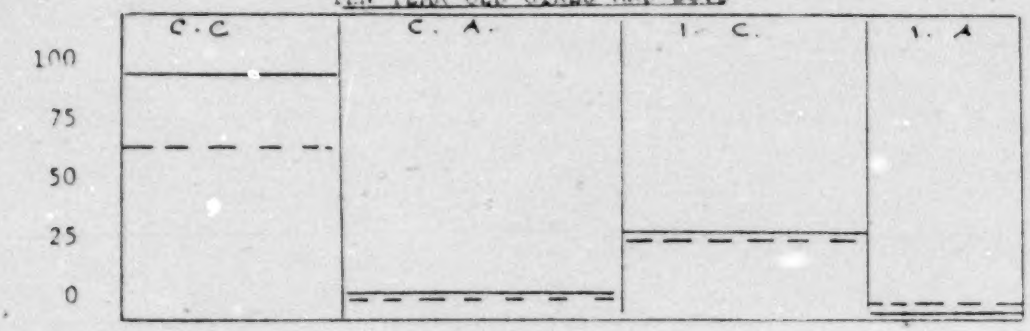
ACE AND SEX RELATED DIFFERENCES IN RESPONDING ON THE FOUR DIMENSIONS

TEN AND FOURTEEN YEAR OLDS



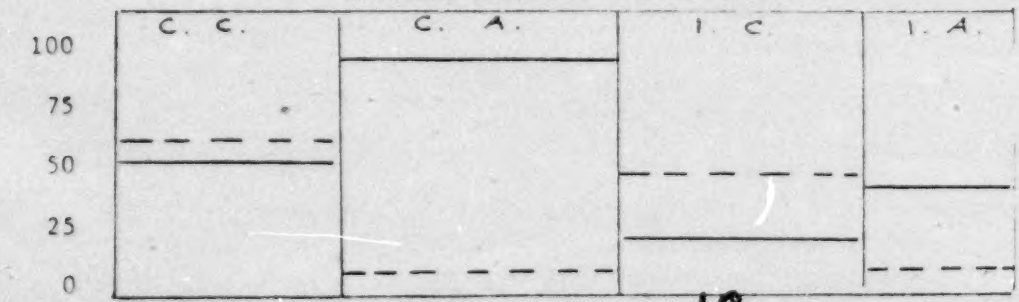
10 yr. olds: ——— 14 yr. olds: — — — —

TEN YEAR OLD GIRLS AND BOYS



Girls: ——— Boys: — — —

FOURTEEN YEAR OLD GIRLS AND BOYS



Girls: ——— Boys: — — —

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